

Citation:

Comer MM, Ibrahim M, McMillan VJ, Baker GG, Patterson SG. Reducing the spread of infectious disease through hand washing. *J of Extension*. 2009 Feb; 47(1):1-8.

Study Design:

Cross-sectional, Observational, Before-and-After Study

Class:

D - [Click here](#) for explanation of classification scheme.

Research Design and Implementation Rating:

NEUTRAL: See Research Design and Implementation Criteria Checklist below.

Research Purpose:

To determine the presence of publications encouraging the public to wash hands in two North Carolina counties, focusing on public restrooms in rest areas, convenience stores, restaurants and childcare facilities.

Objectives of the Study were:

1. Determine if public rest rooms, convenience stores, restaurants, and childcare facilities currently display advertising promoting hand washing.
2. Develop social marketing materials, posters, and flyers for distribution to public rest rooms, convenience stores, restaurants, and childcare facilities.
3. Determine the level of hand washing taking place in public rest rooms, convenience stores, restaurants, and childcare facilities.
4. Research and collect data on the current resources available that promote the use of hand washing as a preventive measure to reduce the spread of infectious disease.

Inclusion Criteria:

- North Carolina residents in Guilford and Caswell counties

Exclusion Criteria:

Facilities which were outside of the participating counties and childcare facilities which did not have a pre-existing relationship with the University were not included.

Description of Study Protocol:**Recruitment**

- Internet based phonebook search of facilities in the zip codes of the participating counties

was completed.

- Restaurants and convenience stores were selected from the list through random die selection of 3 so that every third listed location was reviewed.
- Childcare facilities were selected randomly from a smaller subset of facilities that participated with the university for other programs.

Design: Cross-sectional, observational, before-and-after study

Blinding used (if applicable): not applicable

Intervention (if applicable): not applicable

Statistical Analysis

- Survey results reported as number of responses in each category compared to number of surveys in percentage calculations.
- No assessment of significance

Data Collection Summary:

Timing of Measurements

Survey of facilities was not specified.

Dependent Variables

- Retroactive assessment of 3 month soap and paper towel usage along with additional 3 month soap and paper towel usage

Independent Variables

- Education communication
- Though not specifically stated, it appears that the survey included a Yes/No assessment of the presence of hand washing communication materials available to the public

Control Variables

Description of Actual Data Sample:

Initial N: 299 sites sampled

Attrition (final N): 299 sites

Age: not described

Ethnicity: not described

Other relevant demographics

Sites included restaurants, rest areas, childcare facilities and convenience stores though the number of each was not specified.

Anthropometrics

Location:

Guilford and Caswell Counties of North Carolina, USA

Summary of Results:**Key Findings:**

Objective 1:

- Of the 299 sites sampled, only 3.7% (11) displayed hand washing publications aimed at the consumer.
- 78% (223) had a sign that stated it was a state law to wash your hands before returning to work, as is required by law.
- 90% of childcare facilities reviewed posted step by step detailed instructions with pictures on the proper way to wash hands. However, these were geared to children and posted at child eye level only in areas where children would wash hands.
- All foodservice/restaurant facilities had signs posted indicating "by law employees must wash their hands before returning to work."

Objective 2:

- The researchers developed an education tool appropriate for reaching low income and/or uneducated individuals. The tool included a large stop sign in red color with simple language.

Objective 3:

- Soap and paper towel usage in public restrooms over two 3 month periods was inconclusive to determine the amount of handwashing related to a consumer education communication.

Objective 4:

- There were no existing publications that promoted hand washing within the North Carolina Extension, nor the State departments of Health, Labor or the Center for Public Health.
- The North Carolina Child Care Health and Safety Resource Center did have several resources promoting hand washing to young children and staff.

Author Conclusion:

Findings of this study indicate that there are no publications on display in public restrooms targeting consumers that promote hand washing in Guilford and Caswell counties of North Carolina.

Reviewer Comments:

Strengths:

Interesting statement of problem.

Weaknesses:

Minimalist study protocol and statistical analysis with no comparison to goals or expected outcomes.

Research Design and Implementation Criteria Checklist: Primary Research

Relevance Questions

- | | | |
|----|---|-----|
| 1. | Would implementing the studied intervention or procedure (if found successful) result in improved outcomes for the patients/clients/population group? (Not Applicable for some epidemiological studies) | Yes |
| 2. | Did the authors study an outcome (dependent variable) or topic that the patients/clients/population group would care about? | Yes |
| 3. | Is the focus of the intervention or procedure (independent variable) or topic of study a common issue of concern to nutrition or dietetics practice? | Yes |
| 4. | Is the intervention or procedure feasible? (NA for some epidemiological studies) | Yes |

Validity Questions

- | | | |
|------|---|-----|
| 1. | Was the research question clearly stated? | Yes |
| 1.1. | Was (were) the specific intervention(s) or procedure(s) [independent variable(s)] identified? | Yes |
| 1.2. | Was (were) the outcome(s) [dependent variable(s)] clearly indicated? | Yes |
| 1.3. | Were the target population and setting specified? | Yes |
| 2. | Was the selection of study subjects/patients free from bias? | ??? |
| 2.1. | Were inclusion/exclusion criteria specified (e.g., risk, point in disease progression, diagnostic or prognosis criteria), and with sufficient detail and without omitting criteria critical to the study? | ??? |
| 2.2. | Were criteria applied equally to all study groups? | ??? |
| 2.3. | Were health, demographics, and other characteristics of subjects described? | ??? |
| 2.4. | Were the subjects/patients a representative sample of the relevant population? | ??? |
| 3. | Were study groups comparable? | N/A |
| 3.1. | Was the method of assigning subjects/patients to groups described and unbiased? (Method of randomization identified if RCT) | N/A |
| 3.2. | Were distribution of disease status, prognostic factors, and other factors (e.g., demographics) similar across study groups at baseline? | N/A |

3.3.	Were concurrent controls used? (Concurrent preferred over historical controls.)	N/A
3.4.	If cohort study or cross-sectional study, were groups comparable on important confounding factors and/or were preexisting differences accounted for by using appropriate adjustments in statistical analysis?	N/A
3.5.	If case control or cross-sectional study, were potential confounding factors comparable for cases and controls? (If case series or trial with subjects serving as own control, this criterion is not applicable. Criterion may not be applicable in some cross-sectional studies.)	N/A
3.6.	If diagnostic test, was there an independent blind comparison with an appropriate reference standard (e.g., "gold standard")?	N/A
4.	Was method of handling withdrawals described?	Yes
4.1.	Were follow-up methods described and the same for all groups?	Yes
4.2.	Was the number, characteristics of withdrawals (i.e., dropouts, lost to follow up, attrition rate) and/or response rate (cross-sectional studies) described for each group? (Follow up goal for a strong study is 80%.)	Yes
4.3.	Were all enrolled subjects/patients (in the original sample) accounted for?	Yes
4.4.	Were reasons for withdrawals similar across groups?	N/A
4.5.	If diagnostic test, was decision to perform reference test not dependent on results of test under study?	N/A
5.	Was blinding used to prevent introduction of bias?	N/A
5.1.	In intervention study, were subjects, clinicians/practitioners, and investigators blinded to treatment group, as appropriate?	N/A
5.2.	Were data collectors blinded for outcomes assessment? (If outcome is measured using an objective test, such as a lab value, this criterion is assumed to be met.)	N/A
5.3.	In cohort study or cross-sectional study, were measurements of outcomes and risk factors blinded?	N/A
5.4.	In case control study, was case definition explicit and case ascertainment not influenced by exposure status?	N/A
5.5.	In diagnostic study, were test results blinded to patient history and other test results?	N/A
6.	Were intervention/therapeutic regimens/exposure factor or procedure and any comparison(s) described in detail? Were intervening factors described?	???
6.1.	In RCT or other intervention trial, were protocols described for all regimens studied?	N/A

6.2.	In observational study, were interventions, study settings, and clinicians/provider described?	???
6.3.	Was the intensity and duration of the intervention or exposure factor sufficient to produce a meaningful effect?	Yes
6.4.	Was the amount of exposure and, if relevant, subject/patient compliance measured?	N/A
6.5.	Were co-interventions (e.g., ancillary treatments, other therapies) described?	N/A
6.6.	Were extra or unplanned treatments described?	N/A
6.7.	Was the information for 6.4, 6.5, and 6.6 assessed the same way for all groups?	N/A
6.8.	In diagnostic study, were details of test administration and replication sufficient?	N/A
7.	Were outcomes clearly defined and the measurements valid and reliable?	No
7.1.	Were primary and secondary endpoints described and relevant to the question?	Yes
7.2.	Were nutrition measures appropriate to question and outcomes of concern?	Yes
7.3.	Was the period of follow-up long enough for important outcome(s) to occur?	Yes
7.4.	Were the observations and measurements based on standard, valid, and reliable data collection instruments/tests/procedures?	???
7.5.	Was the measurement of effect at an appropriate level of precision?	???
7.6.	Were other factors accounted for (measured) that could affect outcomes?	No
7.7.	Were the measurements conducted consistently across groups?	N/A
8.	Was the statistical analysis appropriate for the study design and type of outcome indicators?	No
8.1.	Were statistical analyses adequately described and the results reported appropriately?	No
8.2.	Were correct statistical tests used and assumptions of test not violated?	Yes
8.3.	Were statistics reported with levels of significance and/or confidence intervals?	No
8.4.	Was "intent to treat" analysis of outcomes done (and as appropriate, was there an analysis of outcomes for those maximally exposed or a dose-response analysis)?	N/A
8.5.	Were adequate adjustments made for effects of confounding factors that might have affected the outcomes (e.g., multivariate analyses)?	N/A

8.6.	Was clinical significance as well as statistical significance reported?	No
8.7.	If negative findings, was a power calculation reported to address type 2 error?	No
9.	Are conclusions supported by results with biases and limitations taken into consideration?	Yes
9.1.	Is there a discussion of findings?	Yes
9.2.	Are biases and study limitations identified and discussed?	No
10.	Is bias due to study's funding or sponsorship unlikely?	Yes
10.1.	Were sources of funding and investigators' affiliations described?	Yes
10.2.	Was the study free from apparent conflict of interest?	Yes

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